

**Climatological Data for May, 1910.**  
**DISTRICT No. 9, COLORADO VALLEY,**

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**GENERAL SUMMARY.**

The weather conditions during May were unsettled. The storms were generally well defined and energetic in movement, but the precipitation was light in the central and southern parts of the district, even for May, and unusually light in the upper part of the drainage area. Temperature changes were frequently abrupt; cold weather for the time of the year, with frosts and freezing temperature in parts of northern Arizona, northern New Mexico, Utah, Colorado, and Wyoming, was quickly followed throughout the district by unusually high temperatures, in some localities, the highest of record. As a result of the prolonged droughty conditions grass remained short on the ranges in southwestern Wyoming. In Utah dry farm wheat was suffering at the close of the month.

**TEMPERATURE.**

The mean of the 127 stations reporting was 62.9°, or 2.4° above the normal. An excess was general, except over small areas in southeastern Arizona and northwestern Colorado. By subdivisions the means and departures were: Western Wyoming, 44.1°, +4.5°; western Colorado, 50.6°, +1.3°; eastern Utah, 58.7°, +2.2°; western New Mexico, 63.0°, +2.3°; Arizona, 72.5°, +2.6°. The highest monthly mean was 83.8°, at Sentinel, Ariz., and the lowest, 31.0°, at Corona, Colo., on the Continental Divide. Temperatures fluctuated considerably during the first 6 days, but on the whole the weather was cooler than the normal, with marked deficiencies general on the 6th, on which date damaging frosts were reported in Utah. From the 7th to the 14th high mean temperatures were noted, but from the 15th to 23d the weather was again cold in the northern half of the district, and in northern Arizona, with frosts on the 16th, 17th, 18th, and 22d in the agricultural regions of the central and northern parts of the district, considerable damage being done to fruit at higher stations on the 17th. From the 27th to the close of the month very high temperatures prevailed throughout the entire district. It may be of interest to note that the distribution of pressure during the extraordinarily hot period of the closing days of the month occurred with pressure above the normal and a moderate gradient from the north toward the Gulf of California. The insolation during this period was unusually strong, and, although the nights were also free from clouds, the direction of the wind was unfavorable to the usual cooling at night. The highest local maximum, 121°, was noted at Gilabend, Ariz., on the 29th, and at Quartzsite, Ariz., on the 30th. At Yuma, Ariz., 120° was noted on the 30th.

**PRECIPITATION.**

The precipitation during the month was about one-half of the normal, the mean of 172 stations being 0.38, and the deficiency 0.35 inch. Of the stations with normals, only 5 reported an excess, and that very slight. In eastern Utah, northwestern New Mexico, and the greater part of Arizona, the month was without rain. By watersheds the means and departures were: Green, 0.97, -0.38 inch; Grand, 0.97, -0.64; San Juan, 0.31, -0.85; Mimbres, 0.20, -0.08; Little Colorado, 0.04, -0.56; Gila, 0.05, -0.20, and Colorado proper, 0.01, -0.28 inch. The greatest monthly amount was 5.27 inches at Corona, Colo., while in New Mexico and Arizona 42 stations reported no precipitation, and 30 only a trace.

On the 2d snow fell at a few of the higher stations in Colorado, and again on the 6th. A heavy fall for the time of year occurred on the 16th in the mountains of Colorado, Wyoming, and eastern Utah, a number of stations reporting 6 inches or more. During the storm of the 21st, which was general in the higher elevations in Colorado, the average snowfall was 4 inches. In Wyoming

the greatest monthly amount reported was 16 inches; in Colorado, 48.6 inches; and in Utah, 7.5 inches.

**RIVERS.**

The volume discharged by the principal tributaries of the Colorado and the maximum stages reached varied but slightly from those for May, 1909. In the trunk stream the volume discharged was appreciably smaller than a year ago, with the maximum stages at Grand Canyon and Yuma about 3.0 feet lower.

**MISCELLANEOUS.**

The percentage of sunshine was much above the average in the northern part of the district. Grand Junction and Durango reported 88, Flagstaff 92, Phoenix 93, and Yuma 96 per cent of the possible.

The mean monthly relative humidity observed ranged from 40 per cent at Durango to 32 per cent at Phoenix.

**COMPLETE PROVING OF THE ROOSEVELT DAM.**

By L. N. JESUNOVSKY, Section Director, Phoenix, Ariz.

The farmers in the Salt River Valley are congratulating themselves and thanking the Government for the Roosevelt Dam. This gigantic project has proven itself, beyond all question, the most successful in the history of Arizona, for the residents of the Salt River Valley are now passing through severe conditions of drought of 7 weeks' duration, fully as acute as during the spring months of 1900, 1901, 1902, 1903, and 1904. But for the stored water supply behind the large pile of masonry some 75 miles east of Phoenix—more than 155,000 acre-feet—the growing crops on every acre under the project would have been hopelessly lost several weeks ago. At the present height of the stored water supply—some 112 feet—water for irrigation purposes may be had for 100 days, or more, should not even a single light shower occur.

The fact is that the big dam has thoroughly proven its full usefulness. Formerly, on account of droughts, there were serious water shortages in the Salt River Valley, but now conditions are entirely different.

There were at the end of May 11, 683 miners' inches of water in the Salt River, which was the principal source of supply before the massive pile of concrete called the Roosevelt Dam was constructed. There are now in use each day 40,644 miners' inches, and none is allowed to flow that is not positively necessary. In other words, were it not for the dam only a little more than 25 per cent of the water needed could be supplied, and that would mean ruin to every farmer whose land is under the project.

Were Salt River Valley to-day depending upon the water under the old system, only 4,915 inches would be given to the land lying on the north side of the river, whereas, there are now given 26,890 inches. All of this is absolutely required to keep alive the orchards, grain, and grasses, which need water constantly for sustenance. It would also mean ruin to the farmers located on the south side of the river as well, for there would be only 6,764 inches to supply the needs of that side, whereas they are now receiving a full and bountiful supply.

These figures are of great import to the farmer, and of great importance as illustrating the full usefulness of the Roosevelt Dam to the whole southwest, for much of the products raised in the Salt River Valley finds ready sale in far distant markets.

The above figures mean that 52,000 acres, every foot of which is now in the highest possible state of cultivation, would have been, to date, some 5 weeks with no water for irrigation, stock, or domestic use, while another 31,000 acres, completing

the 83,000 acres lying north of the Maricopa Canal, could be given only 1 miner's inch to each 6 acres. An amount that would have had as much effect in raising a crop as dumping a bucket of water into the ocean would have of raising a tidal wave.

With the rainfall for the year 1901, given by the Weather Bureau as being only 4.87 inches, the year 1910, up to June 1, shows a fall of 1.40 inch only, much less than the amounts that fell in the spring of 1900 or 1901. The drainage area above the Roosevelt Dam is tremendous, but a moderate rain falling over its entire area would hardly make an appreciable difference in the run-off, owing to the extremely rapid evaporation.

#### STORED WATER.

There was at the end of May, 1910, 166,000 acre-feet of water and there is being taken out each day 1,456 acre-feet. Allowing a matter of 10,000 acre-feet for shrinkage from evaporation, the Reclamation engineers state that this supply will last at least until September 15 next. It is because of this fact that the Salt River Valley farmer reckons that his crops are safe. Granted that no precipitation occurs during the remainder of the season, his crop is assured by the mass of water in the reservoir, and the summer rains are sure to come, so that planting in the fall will be an easy matter.

Rain is to be expected in July, of course, but the amounts may be too small for practical utility. There have been periods when it has not rained during that month in what may be

termed commercial quantities, and it is for this reason that Engineer Reed, United States Reclamation Service, desires an economical use of the present water supply.

Another surprising figure is contained in portion of the Reclamation records devoted to Mesa. That district would now be receiving 732 inches under the old system, scarcely enough even to wet but a few acres, and everything living in the way of vegetation would have been dried up several weeks ago. Under the present conditions, 6,800 miners' inches are flowing their way into the land and the whole district is full of vegetation.

The water is now flowing continually in the canals. Last year when but 4 hours of water per day was given to a quarter section, with the dam far from completion, at the present time water is flowing over every quarter section for each of the 24 hours, as needed. This despite the fact that conditions of drought prevail in the rivers. Thus has the Roosevelt Dam, still 1 per cent incomplete, proven its thorough usefulness. There can now be no failure of crops in the Salt River Valley.

Intelligent conservation, however, is necessary; not stinginess with water, nor stunting of crops as a choice of the lesser of two evils, but a careful, wise use of the water that there may continue to be plenty. The Government has worked out the theories and has proven them by facts in the present instance. It now relies upon the farmer to irrigate according to the rules as laid down, and the present prospects for record-breaking crops and for good planting next fall will be realized.